

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Richmond Division**

SAMSUNG ELECTRONICS CO., LTD.,
Plaintiff,

v.

Civil Action No. 3:14cv757

NVIDIA CORPORATION,
Defendant.

MEMORANDUM OPINION

This matter came before the Court on NVIDIA'S MOTION TO STRIKE THE TESTIMONY AND REVERSE ENGINEERING REPORTS OF DR. JEONGDONG CHOE PURSUANT TO RULE 37(c) (Docket No. 744). Having considered the associated papers and oral arguments, and for the reasons stated below, the Court orally granted the motion in part and denied the motion in part. The Court granted a mistrial as to the 6,287,902 ("902") and 8,252,675 ("675") patents in order to provide sufficient time during which NVIDIA Corporation might engage in curative expert discovery, but denied the motion as it pertained to striking the testimony or reports of Dr. Jeongdong Choe. This Memorandum Opinion followed.

BACKGROUND

This patent infringement action was brought by Samsung Electronics Co., Ltd. ("Samsung") against NVIDIA Corporation ("NVIDIA"), alleging infringement of the '902 and '675 patents, as well as the 6,819,602 patent ("602"). (Second Am. Compl.,

Docket No. 81).¹ As to the '675 and '902 patents, Samsung alleged, inter alia, that NVIDIA had infringed by importing, selling, and offering to sell infringing products that were made by an infringing process and under an infringing design. (Second Am. Compl., ¶¶ 1323-2135, 2288-2596). More specifically, Samsung alleged that NVIDIA sold, offered for sale and imported the accused products from non-party Taiwan Semiconductor Manufacturing Company ("TSMC"). Id.

During discovery, Samsung sought evidence from TSMC regarding the design and the manufacturing of the allegedly infringing products (computers and the chips). (E.g., Pl.'s Opp. to NVIDIA's Mtn. to Strike, Docket No. 755, 17) ("Pl.'s Choe Mem."). TSMC was non-responsive to entreaties from the parties and the Court. Id. In the absence of evidence from TSMC about the design and the manufacturing process, Samsung elected to have an expert "tear down" the allegedly infringing chips and offer an opinion about the design of the accused chips and how TSMC had made them. Id. Samsung chose Dr. Jeongdong Choe ("Dr. Choe"), an expert in reverse engineering employed by TechInsights, Inc. ("TechInsights") to provide an expert report

¹ Other parties and claims were originally part of the action. By the time of trial, the parties had been whittled down to Samsung and NVIDIA, and the claims had been whittled down to infringement of the '602, '675, and '902 patents.

on the design and structure of the allegedly infringing chips and the process that TSMC used to make those chips. Id.

At the outset of the case, the parties, with the approval of the Court, altered some of the disclosure obligations of Fed. R. Civ. P. 26 through a Stipulated Discovery Order, which provided that "all materials generated by a testifying expert with respect to that person's work are exempt from discovery unless relied upon by the expert in forming any opinions in this litigation." (Docket No. 198, 8-9) (emphasis added).² In the run-up to trial, NVIDIA served a Request for Production of documents seeking "documents and things generated by You or other(s) on your behalf ... for litigation or non-litigation purposes, including but not limited to any teardown or reverse engineering reports, electron microscope images, product sample analysis, or product comparison reports." (Docket No. 751, Ex. A). In response to that discovery request and pursuant to the Stipulated Discovery Order, Samsung committed to provide NVIDIA with the reverse engineering documents relied upon by Dr. Choe

² The Stipulated Discovery Order, like the Federal Rules, protected communications between counsel and testifying experts. (Docket No. 193 ¶ 5); see also, e.g., Republic of Ecuador v. Mackay, 742 F.3d 860, 869-70 (9th Cir. 2014); Republic of Ecuador v. Hinchee, 741 F.3d 1185, 1195 (11th Cir. 2013); Republic of Ecuador v. For Issuance of a Subpoena Under 28 U.S.C. Sec. 1782(a), 735 F.3d 1179, 1186 (10th Cir. 2013); Siemens Med. Sols. USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc., 637 F.3d 1269, 1286 (Fed. Cir. 2011).

in connection with his expert report. (Def.'s Mem. in Supp. of Mtn. to Strike the Testimony and Reverse Engineering Reports of Dr. Jeongdong Choe Pursuant to R. 37(c), Docket No. 745, 4-5 ("Def.'s Choe Mem."); Docket No. 751, Exs. B-E).

Dr. Choe ultimately produced an expert report that included thirteen (and, following a supplement, fifteen) reverse engineering reports that cited numerous cross-sectional images of the allegedly infringing chips. (Def.'s Choe Mem. 6-8; Docket No. 751, Exs. H-J). At his deposition, Dr. Choe testified that his expert reports and exhibits were accurate and complete. (Def.'s Choe Mem. 8; Docket No. 751, Ex. K 19:7-11; 41:16-42:11; 46:16-17:14; 47:17-48:22; 289:13-19). Dr. Choe's report served as the foundation upon which both parties built their infringement cases because both parties' infringement experts based their analyses on Dr. Choe's explanation of the design and manufacture of accused chips produced for NVIDIA by TSMC. (E.g., Pl.'s Choe Mem. 16).

During cross-examination at trial, Dr. Choe testified that, in forming his opinions, he had relied on images that were disclosed neither in his expert reports nor to counsel for either side. (Def.'s Choe Mem. 9-14; see also, e.g., Tr. Jan. 28, 2016 518:1-519:22, 697:14-16; 705:16-21). In particular, Dr. Choe testified that he had reviewed a large number of so-called EDS and EEL images that were not disclosed, and that he had

relied on some of those images in reaching the conclusions stated in his expert reports and in his testimony at trial. In essence, Dr. Choe explained that he had used both the disclosed and undisclosed images: (1) to select the most representative images for disclosure in his report; and (2) to confirm that the images that he had reproduced in his reports and testified to at trial were accurate. According to Dr. Choe, the process that he followed is a standard process used both by TechInsights specifically and by practitioners of semi-conductor reverse-engineering generally. Id.

The Court instructed Samsung to procure the undisclosed images from TechInsights and to provide them to NVIDIA immediately. (Tr. Jan. 29, 2016 744:8-21). Samsung did so. Id. Thereafter, and while trial was progressing on the '602 patent, NVIDIA's expert witness on infringement, Dr. Jack Lee ("Dr. Lee"), performed a brief preliminary exam of the previously undisclosed images. NVIDIA concluded that some of the previously undisclosed materials upon which Dr. Choe relied demonstrated that silicon was present in the TiN/TaTiN layer of the allegedly infringing chips. (Def.'s Choe Mem. 9). The presence of silicon in that layer is an important aspect of NVIDIA's non-infringement defense in this case. Id. The parties agreed upon an accelerated briefing schedule to address how this apparent discovery violation should be handled. (Tr. Jan. 29,

2016 963:17-964:10). This motion and the associated papers followed. Following oral argument, the Court declared a mistrial on the '675 and '902 patents, but proceeded with trial on the '602 patent.

LAW AND APPLICATION

NVIDIA's motion for sanctions was filed pursuant to Fed. R. Civ. P. 37(c)(1), which provides that:

If a party fails to provide information or identify a witness as required by Rule 26(a) or (e), the party is not allowed to use that information or witness to supply evidence on a motion, at a hearing, or at a trial, unless the failure was substantially justified or is harmless. In addition to or instead of this sanction, the court, on motion and after giving an opportunity to be heard:

- (A) may order payment of the reasonable expenses, including attorney's fees, caused by the failure;
- (B) may inform the jury of the party's failure; and
- (C) may impose other appropriate sanctions, including any of the orders listed in Rule 37(b)(2)(A)(i)-(vi).

Fed. R. Civ. P. 37(b)(2)(A)(i)-(vi) provides the following by way of alternate or additional sanctions:

- (i) directing that the matters embraced in the order or other designated facts be taken as established for purposes of the action, as the prevailing party claims;
- (ii) prohibiting the disobedient party from supporting or opposing designated claims or defenses, or from introducing designated matters in evidence;

- (iii) striking pleadings in whole or in part;
- (iv) staying further proceedings until the order is obeyed;
- (v) dismissing the action or proceeding in whole or in part;
- (vi) rendering a default judgment against the disobedient party

The process of deciding whether to impose sanctions such as those requested by NVIDIA involves three major steps: (1) determining that a violation of a discovery order or one of the Federal Rules of Civil Procedure occurred; (2) determining whether that violation was harmless and substantially justified, by reference to Southern States Rack & Fixture, Inc. v. Sherwin-Williams Co., 318 F.3d 592, 597 (4th Cir. 2003); and (3) fitting a sanction to the violation, if one is found.

A. Establishing The Existence Of A Violation

First, a court determines whether a violation of a rule of civil procedure or a court order has occurred. Fed. R. Civ. P. 26 requires that an expert witness's report must include "the facts or data considered by the witness in forming" his opinion. Fed. R. Civ. P. 26(a)(2)(b)(ii) (emphasis added). However, the parties, with the Court's approval, agreed to a Stipulated Discovery Order that provided: "all materials generated by a testifying expert with respect to that person's work are exempt from discovery unless relied upon by the expert in forming any opinions in this litigation." (Docket No. 198, 8-9) (emphasis

added). Thus, Samsung's obligation here was to disclose the documents upon which Dr. Choe relied.

At trial, Dr. Choe's testimony was inconsistent about whether he relied upon the undisclosed scans. (E.g., Def.'s Choe Mem. 9-14, 16-17). On January 28, 2016, in response to questions on cross-examination by NVIDIA's counsel, Dr. Choe clearly stated that he had relied upon material that was not disclosed as part of his report. (Tr. Jan 28, 2016 697:14-16, 702:10-22; Def.'s Choe Mem. 10-13).³ On January 29, 2016, Dr. Choe stated, with equal clarity, that he had not relied upon any material that was not disclosed as part of his report. (Tr. Jan. 29, 2016 941:2-5; Pl.'s Choe Opp. 5-6). The parties concur that the Court is both the appropriate factfinder and the proper judge of Dr.

³ Aside from several minutes of introductory remarks in English, Dr. Choe testified in Korean through an interpreter, whose work was verified by a check interpreter. The parties briefly tussled over whether Dr. Choe's understanding of "relied upon" is the result of potential linguistic difficulties. (E.g., Def.'s Choe Mem. 1-2, 18-21; Pl.'s Choe Mem. 6). The Court declines to investigate potential alternate meanings of "relied upon": the interpreters were skilled and capable, and they articulated concerns about linguistic nuances when such concerns arose. (E.g., Tr. Jan. 29, 2016, 940:18-19). The Court is not qualified to judge linguistic nuances, and must rely upon the work of the translators. Moreover, if the Court began second-guessing the interpreters' translations of record, it would wreak havoc upon the Court and the parties' ability to rely upon that record. The Court and the parties are entitled to - and for the sake of an orderly record, must - rely upon the work of the capable translators.

Choe's credibility on this issue. (Def.'s Choe Mem. 16-18; Pl.'s Choe Opp. 6-7).

The Court finds that, in keeping with procedures used regularly by TechInsights and others in the industry, Dr. Choe did rely upon images that were not disclosed with his expert report. The Court notes that, in failing to disclose those documents, Dr. Choe did not act duplicitously or with any awareness that he was not fulfilling Samsung's obligations.⁴ It is equally clear that Dr. Choe did not explain to Samsung's counsel that, in following his usual practice, he had not disclosed all the materials upon which he had relied.

In an attempt to argue that the nondisclosure was still not a violation, Samsung characterizes the undisclosed material as "raw data and back-up files," that, according to Samsung, typically fall outside the reach of Fed. R. Civ. P. 26(a). (Pl.'s Choe Opp. 7). There are two significant problems with Samsung's argument. First, the parties supplanted Rule 26(a) with their own Stipulated Discovery Order that required disclosure of whatever Dr. Choe relied upon to form or support his opinions. Thus, even if the non-disclosed documents were

⁴ The Court observes that standard practice in the semi-conductor industry is not standard practice in civil discovery. When the Court, by rule or order, requires greater disclosure than is standard in the industry, it is the Court's rule or order that governs.

"raw data and back-up files," they had to be disclosed if Dr. Choe relied on them. Because Dr. Choe relied upon these scans, they were subject to disclosure. Second, the record suggests that the undisclosed information was not just "raw data or back-up files." Much of the omitted materials were the same type of materials - EEL and EDS scans - that were submitted with Dr. Choe's expert report. (Def.'s Choe Mem. 11-18). Dr. Choe's report - following semiconductor industry standard procedures - disclosed only one-tenth of these materials. (Def.'s Choe Br. 17-18). On the record before the Court, the materials disclosed are of the same kind and form (though not the exact content) as the materials that were not disclosed. Thus, it is not possible to characterize them as "raw data or back-up files" which would not be subject to the Stipulated Discovery Order.

On this basis, the Court finds that, by failing to disclose all of the materials relied upon by its expert, Dr. Choe, Samsung violated the Stipulated Discovery Order. Although the nondisclosure was not known by Samsung or its counsel, it is nonetheless the responsibility of counsel to make clear to their experts the scope of applicable disclosure obligations. Thus, Dr. Choe's nondisclosure and the resulting violation must ultimately be attributed to Samsung.

B. Substantially Justified And Harmless (Southern States)

Standing alone, nondisclosure does not require or justify corrective action. A court only takes action if the failure to disclose was not (1) substantially justified and (2) harmless. Fed. R. Civ. P. 37(c)(1); Southern States, 318 F.3d at 595. In the Fourth Circuit,⁵ substantial justification and harmlessness are determined by reference to five factors stated in Southern States:

- (1) The surprise to the party against whom the evidence would be offered.
- (2) The ability of that party to cure the surprise.
- (3) The extent to which allowing the evidence would disrupt the trial.
- (4) The importance of the evidence,⁶ and
- (5) The nondisclosing party's explanation for its failure to disclose the evidence.⁷

⁵ The Federal Circuit reviews a district court's decision to exclude evidence under the law of the regional circuit. Tokai Corp. v. Easton Enterprises, Inc., 632 F.3d 1358, 1364 (Fed. Cir. 2011).

⁶ "Importance of the evidence" cannot, by itself, save improperly disclosed evidence from being found unjustified or non-harmless. Even if a party's entire case hangs on one expert, such that excluding the expert leads inevitably to summary judgment against that party, then that expert's testimony may be excluded if that expert's testimony was improperly disclosed. E.g., Zaklit v. Global Linguist Solutions, LLC, 2014 WL 4925780 (E.D. Va. Sept. 30, 2014).

Southern States, 318 F.3d at 597. The burden of establishing these factors lies with the nondisclosing party. Wilkins v. Montgomery, 751 F.3d 214, 222 (4th Cir. 2014); Southern States, 318 F.3d at 596. If the failure to disclose was not "substantially justified" and "harmless," then then the court proceeds to impose a sanction.

Applying the Southern States factors to this case, it is clear that Samsung's failure to disclose was neither harmless nor substantially justified. Each factor will be considered in turn.

1. Surprise and Cure

Samsung argues that NVIDIA cannot be surprised by the nondisclosure and was able to easily cure the nondisclosure because NVIDIA was on notice about Dr. Choe's methods months before this trial. Samsung also points out that, through hearings and depositions, NVIDIA received notice as early as August 31, 2015, that Dr. Choe had relied on undisclosed documents. (Pl.'s Choe Opp. 9-11).⁸ Thus, Samsung argues, NVIDIA

⁷ Bad faith is explicitly not one of the Southern States factors. E.g., Southern States, 318 F.3d at 596 ("excluding evidence only when the nondisclosing party acted in bad faith would undermine the basic purpose of Rule 37(c)(1): preventing surprise and prejudice to the opposing party"); Rambus, Inc. v. Infineon Technologies, AG, 145 F. Supp. 2d 721, 725-27 (E.D. Va. 2001).

⁸ Samsung also argues that NVIDIA was on notice of Dr. Choe's scan-selection methods as early as May 18, 2015, when Dr. Choe

could not have been surprised by the testimony at trial, and it would have been easy for NVIDIA to have cured this violation if NVIDIA had acted when it received notice.⁹ (Pl.'s Choe Opp. 8-14). On this record, it is evident that Dr. Choe's disclosure of the process that he followed at various proceedings put counsel for NVIDIA and Samsung on notice that Dr. Choe's report would disclose only some of the scans upon which he relied.

However, notice in deposition testimony does not render a failure to disclose in the expert report unsurprising or curable, even when that deposition testimony completely covers the material that should have been disclosed. E.g., Perkins v. United States, 626 F. Supp. 2d 587, 591-92 (E.D. Va. 2009) (relying on Carr v. Deeds, 453 F.3d 593, 604 (4th Cir. 2006)). This is because "Rule 26 disclosures are often the centerpiece of discovery in litigation that uses expert witnesses. A party that fails to provide these disclosures unfairly inhibits its opponent's ability to properly prepare, unnecessarily prolongs litigation, and undermines the district court's management of the case." Carr, 453 F.3d 593, at 604; Campbell v. United

was deposed in a separate ITC proceeding also between Samsung and NVIDIA. (Pl.'s Choe Opp. 9). It is the Court's understanding that NVIDIA's outside counsel in this case also represents NVIDIA in the ITC proceeding.

⁹ The Court observes that this argument cuts both ways. If NVIDIA was on notice of the violation in August, then Samsung also was on notice on the violation in August, and could have remedied the violation before trial.

States, 2011 WL 588344 (E.D. Va. Feb. 8, 2011) (noting that Rule 26(a)(2) exists partly so that parties are not required to discover the basis for an expert's testimony entirely through deposition testimony); see also Abraham v. Cty. of Greenville, 237 F.3d 386, 392-93 (4th Cir. 2001) (noting that one party's failure to file a motion to compel did not waive the nondisclosing party's obligation to disclose); Adams v. Kroger Ltd. P'ship I, No. 3:11-CV-141, 2013 WL 6229379, at *2 (E.D. Va. Dec. 2, 2013) (noting the general proposition that what an opposing party should have known does not affect a nondisclosing party's obligations). A failure to disclose in the right form, at the right time, impedes discovery at the time of nondisclosure, such that later putting the opposing party on notice does not render the nondisclosure unsurprising or curable.

The United States Court of Appeals for the Fourth Circuit and the district courts in this circuit are clear that an expert report should be a comprehensive document that, by itself, provides all the expert's opinions that will be offered at trial, along with the bases for those opinions. Campbell v. United States, 470 Fed. App'x 153 (4th Cir. 2012); Zakit v. Global Linguist Solutions, LLC, 2014 WL 4925780, at *3 ("the advisory committee intended that an expert's written report be so detailed and complete that it would 'dispense[] with the need

to depose the expert."); Sharpe v. United States, 230 F.R.D. 452, 458 (E.D. Va. 2005). The significance of the expert report as the proper time and place for complete disclosure finds support in the structure of discovery: experts provide reports, and those reports form the basis for informed deposition-taking. Campbell, 2011 WL 588344 at *3 (noting that "Rule 26 provides that an expert deposition 'may be conducted only after the [expert's] report is provided'" to support the notion that revealing information at a deposition does not alleviate the surprise or incurability of a failure to disclose in a report).¹⁰

In conclusion, the record is clear that NVIDIA was on notice that Dr. Choe's report would disclose only a portion of the scans upon which he relied. However, that notice is not dispositive to a Southern States surprise or curability analysis because the duty to timely and completely fulfill expert disclosure requirements rests at all times on the proponent of the expert witness. What NVIDIA could have done does not alter what Samsung ought to have done.

¹⁰ The rule is different when an expert's disclosures are complete, but simply not articulated as clearly as it might have been. Golden Nugget, Inc. v. Chesapeake Bay Fishing Co., L.C., 93 F. App'x 530, 536 (4th Cir. 2004). The case before this Court is not one of lack of clarity, however, but of absence of material.

Additionally, notice at a deposition is insufficient to cure a failure to disclose materials that ought to have been included in the expert report because disclosure in the right form (complete) and at the right time (with the expert report, before the expert's deposition) is critical to an opposing party's ability to engage in meaningful expert discovery (critical analysis of the expert's report, and taking of a targeted deposition). In this case, the only way to cure the surprise (such as it was) at this juncture is to give NVIDIA an opportunity to engage in the full expert discovery to which it was entitled. The nature of this cure will be discussed in a following section.

2. Disruption To Trial

The '602 patent did not involve any of Dr. Choe's work, and required only several days of evidence. Accordingly, there was no disruption of the trial as to that patent. However, on this record, the consequence of effecting the only meaningful cure for the nondisclosure was complete disruption of the trial on the '902 and '675 patents.

Theoretically, as Samsung urged, the Court might have: (1) directed the parties to proceed with the presentation of evidence on the '602 patent; (2) allowed NVIDIA to conduct expert discovery while trial on the '602 patent was underway; and (3) directed the parties to proceed with evidence on the

'675 and '902 patents promptly after the conclusion of evidence on the '602 patent. That would have allowed the trial to proceed roughly within the time period allocated for trial, and all three patents would have been tried before the jury originally chosen for that purpose. In other words, this theoretical alternative would have kept the trial going with minimal disruption to the jury and the Court.

However, forcing NVIDIA to complete supplemental expert discovery in a matter of days would have been an ineffective opportunity to cure, so much so that it would essentially have been no cure at all. TechInsights spent hundreds of hours processing these images. (Tr. Feb. 1, 2016 1229:15-16). Asking NVIDIA to analyze, depose on, and produce jury-ready expert opinions on these images over the course of a few days, in the middle of a trial, would be an impossible schedule, even by the standards of large-scale civil litigation. In sum, forcing NVIDIA to conduct expert discovery in a time period short enough to avoid disrupting the trial would have meant that NVIDIA could not conduct effective expert discovery.

On the other hand, curing the failure to disclose by excluding Dr. Choe entirely, as NVIDIA urged, would make it impossible to hold a trial on the '675 and '902 patents at all. Both Samsung and NVIDIA's infringement experts predicate their opinions upon Dr. Choe's report. If the Court had excluded Dr.

Choe's report, then neither infringement expert could speak intelligently about infringement, because both relied on Dr. Choe's analyses and opinions in framing their own opinions.

The fact that it was impossible to cure the failure to disclose without significantly disrupting the trial demonstrates the failure to disclose was not harmless.

3. The Nondisclosing Party's Explanation

Samsung stresses that it held a good faith belief that the reports it disclosed contained all of the material relied upon by Dr. Choe in reaching his opinions, as required by the Stipulated Discovery Order. (Pl.'s Choe Opp. 5-7, 17). The Court has no doubt that is true. Additionally, the parties agree that the experts believed that Dr. Choe's report as disclosed followed the semi-conductor industry standard. (Def.'s Choe Mem. 10, 17-18; Pl.'s Choe Opp. 17).

But faith - good or bad - is not relevant the substantial justification component or the harmless component of a Southern States analysis. Southern States, 318 F.3d at 596; Rambus, 145 F. Supp. 2d at 725-27.¹¹ Instead, "explanation" looks to the objective circumstances surrounding the nondisclosure. E.g. Southern States, 318 F.3d at 598 (considering argument that nondisclosing party failed to disclose because opposing party

¹¹ Good faith comes into play in fitting the sanction to the failure, discussed in a subsequent section.

delayed producing formula upon which undisclosed opinion was based); Rambus, 145 F. Supp. 2d at 732 (considering whether actions of court and opposing party justified belated disclosure). In that sense, "explanation" looks more at the feasibility of full and timely disclosure than it does at parties' intent.

Examining the circumstances here, it is clear that the nondisclosure arose because Samsung's counsel failed to understand the full extent of the material relied upon by Dr. Choe, and hence the full extent of Samsung's disclosure obligations under the Stipulated Discovery Order. (Pl.'s Choe Mem. 3-7). Counsel's lack of knowledge of the full extent of Dr. Choe's disclosure obligations is not the sort of circumstance that substantially justifies a nondisclosure. Campbell, 2011 WL 588344, at *5.¹² Indeed, any contrary holding would minimize the obligation that counsel bears to fully understand what their retained experts are doing and to make Rule 26 disclosures accordingly. Furthermore, any contrary holding would neglect that expert witnesses are under contract to the hiring party,

¹² Again, the Court notes that, if NVIDIA was on notice of Dr. Choe's inadequate methods, then Samsung also was on notice of Dr. Choe's inadequate methods as early as August 31, 2015 (Pl.'s Choe Opp. 9-11). As such, the ability to properly disclose through supplementation prior to trial was not the sort of circumstance outside Samsung's control that provides an adequate "explanation" under Southern States.

e.g., Burger v. Allstate Ins. Co., No. 07-11870, 2009 WL 1587396, at *1 (E.D. Mich. June 8, 2009), and that their actions must be attributed to the party if the Court is to maintain reasonable control over discovery.

In conclusion, the Southern States factors uniformly weigh against finding that Samsung's failure to disclose was harmless or substantially justified.

C. Fitting The Sanction To The Failure

Having determined that a violation occurred, and that the violation was not harmless or substantially justified, it is necessary to determine what sanction to impose. Although Fed. R. Civ. P. 37(c)(1) is often read as an automatic preclusion sanction against a noncomplying party that prevents that party from offering the nondisclosed evidence at trial, the second sentence of the rule permits "other appropriate sanctions" in addition to or in lieu of the automatic preclusion. Rambus, 145 F. Supp. 2d at 724. District courts enjoy broad discretion to select an appropriate remedy in light of the totality of the circumstances. Southern States, 318 F.3d at 593; Fed. R. Civ. P. 37(c)(1).

The Fourth Circuit employs a four-part test to guide the exercise of that discretion:

- (1) Whether the non-complying party acted in bad faith;

- (2) The amount of prejudice that noncompliance caused the adversary;
- (3) The need for deterrence of the particular sort of non-compliance; and
- (4) Whether less drastic sanctions would have been effective.

Law Enforcement Alliance of Am., Inc. v. USA Direct, Inc., 61 Fed. App'x 822, 830 (4th Cir. 2003) (quoting Anderson v. Found. for Advancement, Educ. and Employment of Am. Indians, 155 F.3d 500, 504 (4th Cir. 1998)); see also Flame S.A. v. Indus. Carriers, Inc., 39 F. Supp. 3d 752, 764 (E.D. Va. 2014). The Fourth Circuit has also noted a need for sanctions to "level[] the evidentiary playing field." Silvestri v. Gen. Motors Corp., 271 F.3d 583, 590 (4th Cir. 2001) (evaluating appropriate sanction in case of spoliation).¹³

NVIDIA requested that the Court impose one of two sanctions: (1) exclude Dr. Choe's testimony, or (2) declare a mistrial on the '675 and '902 patents. For the reasons stated below, the Court concludes that a mistrial plus an award of

¹³ Levelling the playing field is a fairly common factor for formulating an appropriate sanction in the spoliation context. E.g., W. v. Goodyear Tire & Rubber Co., 167 F.3d 776, 779 (2d Cir. 1999). That approach has also been used when crafting a sanction when previously undisclosed evidence was revealed at trial. Estate of Wallace v. City of Los Angeles, 229 F.R.D. 163 (C.D. Cal. 2005) (considering the need to "restore the prejudiced parties to the same position they would have been in absent the wrongful concealment of evidence.").

certain expenses best suits the conduct in question and the purposes of discovery sanctions.

1. Lack Of Bad Faith

Although good faith is irrelevant to determining whether a discovery violation occurred under Southern States, Samsung's good faith is nevertheless relevant to fashioning a sanction for that violation under Anderson. The record is clear that, although Samsung's counsel should have been aware of the violation, they were not. In fact, they believed that they were acting in compliance with their obligations under the Stipulated Discovery Order. (Pl.'s Choe Opp. 5-7, 17). Although the failure to disclose was a violation of the Stipulated Discovery Order, it was an honest mistake. Samsung's good faith counsels in favor of imposing the least severe sanction that also accomplishes the purposes of Anderson and Silvestri.

2. The Amount Of Prejudice

Based on what is known now, the failure to disclose may have deprived NVIDIA of an opportunity¹⁴ to make an argument that goes to the heart of NVIDIA's non-infringement defense. (Def.'s

¹⁴ Samsung insists that this material will ultimately not help NVIDIA's case. (Pl.'s Choe Opp. 15-17). The Court makes no judgment about how helpful this material will be. Assessment of such facts is reserved for the jury, and NVIDIA is entitled to make to the jury an argument informed by its expert's analysis of all the materials relied upon by Samsung's expert.

Choe Mem. 1, 14, 25). Denying NVIDIA that opportunity by forcing it to proceed without time adequately to analyze, depose, and supplement on the previously undisclosed information would constitute significant prejudice. In light of this factor, any sanction must be shaped to allow NVIDIA time to effectively analyze, depose, and supplement.

3. Need For Deterrence

The exact circumstances that led to this nondisclosure - the alleged infringer's alleged lack of knowledge about the design and manufacturing method used to create the imported product, and the resulting need to rely on third-party reverse engineering reports - are somewhat unusual, and the Court does not foresee a significant need to structure a sanction to deter the exact type of oversight presented by the reverse engineering expert in this case.

However, deterrence is still necessary in a broader sense because nondisclosure, left untreated, gives rise to nasty snarls that eat up the parties' time, the Court's time, and the jury's time, in contravention of the rule that cases should be resolved in a just, speedy, and inexpensive manner. Fed. R. Civ. P. 1. There may not be much need to deter incomplete disclosure of semi-conductor reverse engineering scans specifically, but there is certainly a need to take a firm stance to deter nondisclosure more generally. Thus, any sanction in this case

must sufficiently and strongly communicate that it is counsel's duty to fully understand its expert's process of generating a report and to ensure that the expert provides the party with everything that party requires to meet its disclosure obligations.

Adequately communicating this position requires some measure of deterrent sanctions that leave the nondisclosing party worse off than it would have been if it had disclosed. Any less severe ruling would not adequately encourage attorneys to communicate the nature and extent of a party's obligation when dealing with expert witnesses, and might even encourage counsel to ignore missteps by their expert witnesses. Additionally, emphasizing counsel's obligation in such a fashion will help to foreclose future disruption of the sort presented here. As such, the final sanction in this case must leave Samsung worse off than it would have been had it properly disclosed.

In determining the extent of that sanction, the Court's final calculus must also take into account all circumstances of the infraction. Here, that calculus must factor in the failure of NVIDIA's counsel to follow up on the nondisclosure when NVIDIA was placed on notice months before trial. As will be discussed subsequently, the Court finds that limited cost-shifting, in conjunction with a mistrial, best effectuates the

need for deterrence of nondisclosure while not granting NVIDIA a windfall for inaction.

4. Availability Of Less Drastic Sanctions; Levelling The Playing Field

The remedies available to a court for discovery violations include: an order to the nondisclosing party to provide further discovery, shifting of costs and fees, imposing fines, an adverse inference instruction, excluding the withheld evidence, excluding all of a witness's testimony, an order establishing certain facts or issues, a mistrial, and an entry of default judgment or dismissal. Fed. R. Civ. P. 37; see also, e.g., Fitzpatrick v. Am. Int'l Grp., Inc., No. 10 CIV. 142 MHD, 2013 WL 9948284, at *8 (S.D.N.Y. May 29, 2013). The court must consider whether less drastic sanctions would have been effective, and choose the least drastic sanction. Anderson, 155 F.3d at 504.

In this case, the least drastic sanction which also fulfills the goals of Anderson and Silvestri is a mistrial coupled with limited cost-shifting.

(a) A Mistrial Is A Necessary Component Of An Effective Sanction

Mistrials for discovery violations are not common, but neither are they unheard of. The Fourth Circuit previously blessed the grant of a mid-trial mistrial on the basis of a

discovery violation. Abraham, 237 F.3d at 392-93 (4th Cir. 2001).¹⁵ The Second Circuit has held explicitly that, "where ... the nature of the alleged breach of a discovery obligation is the non-production of evidence, a District Court has broad discretion in fashioning an appropriate sanction, including ... to declare a mistrial if the trial has already commenced." Residential Funding Corp. v. DeGeorge Financial, 306 F.3d 99 (2d Cir. 2002). Dicta from the First, Seventh, Eighth, and Sixth Circuits also supports the notion that mistrials may be an appropriate remedy when discovery violations are unearthed mid-trial. Matei v. Cessna Aircraft Co., 35 F.3d 1142, 1147 (7th Cir. 1994); DesRosiers v. Moran, 949 F.2d 15, 22 (1st Cir. 1991); Davis v. American Jet Leasing, Inc., 864 F.2d 612, 613 (8th Cir. 1988); see also Jones v. Illinois Cent. R. Co., 617 F.3d 843, 852 (6th Cir. 2010).

¹⁵ In the criminal context, mistrials are only permitted when no other remedy will suffice, owing to double jeopardy concerns. Harris v. Young, 607 F.2d 1081, 1086-87 (4th Cir. 1979). As discussed, the Court believes that a mistrial is the least severe sanction which fulfills the purposes of Anderson and Silvestri. Additionally, the double jeopardy concern is absent in this case. As such, the proper standard is Anderson's more flexible "no lesser sanction will suffice" rather than Harris's inflexible "no other remedy will suffice." Accord. Zambrano v. City of Tustin, 885 F.2d 1473 (9th Cir. 1989) (holding that district courts are "under an affirmative obligation to explore alternative remedies" before declaring mistrial in a civil case).

District courts have noted several other factors that make a mistrial particularly suited as a remedy for discovery violations: (1) the wronged party's need to conduct additional discovery, Argo Marine Systems, Inc. v. Camar Corp., 102 F.R.D. 280, 285 (S.D.N.Y. 1984); (2) the importance of the nondisclosed evidence, E.E.O.C. v. Spitzer Management, Inc., 2013 WL 2250757, at *9 (N.D. Ohio May 22, 2013); and (3) the volume of information, the amount of time it will take to process that information, and the resulting hardship to the jury. Id.; Estate of Wallace, 229 F.R.D. at 156; Milburn, 1993 WL 173403, at *1-2.¹⁶ These factors are all present in this case to varying degrees.

In this case, a mistrial, coupled with a limited assessment of reasonable expenses, is the least severe sanction that fulfills the goal of restoring NVIDIA to the situation it would have been in absent the failure to disclose. Silvestri, 271 F.3d at 590; Estate of Wallace, 229 F.R.D. at 165-66. Ordering Samsung to provide further discovery is useless to NVIDIA unless NVIDIA has time to process, depose, and use that discovery.

¹⁶ Cases discussing the decision to grant a midtrial mistrial only in passing include Koehn v. Yamaha Motor Corp., USA, 1997 WL 250456 (D. Kan. Apr. 2, 1997) and In re Connolly N. Am., LLC, 376 B.R. 161, 164 (Bankr. E.D. Mich. 2007). These cases lack substantive discussion of why a mistrial was appropriate, but their existence tends to demonstrate that mistrials are accepted across the federal system as sanctions for discovery violations.

Given that TechInsights spent hundreds of hours processing these images (Tr. Feb. 1, 2016 1229:15-16), it is inappropriate to expect NVIDIA to put these materials to use any sooner than several weeks from the time of production. Granting a mistrial provides NVIDIA with the time it needs.

(b) Any Sanction Lesser Than A Mistrial Would Be Ineffective

Of course, it is not enough that a mistrial can level the playing field: to meet the requirements of Anderson, a mistrial must also be the least severe sanction which is capable of curing the violation.

Under the circumstances of this case, a mistrial is less severe than other "terminating" sanctions such a dismissal, because a mistrial delays but does not completely preclude Samsung's access to a jury. A mistrial is also less severe than exclusion of Dr. Choe's testimony. Fitzpatrick characterizes its list of sanctions, reproduced above, as an "ascending" order of sanctions, and states that a mistrial is on the same level of severity - the highest level - as an entry of default judgment or dismissal. Fitzpatrick, 2013 WL 9948284, at *8. The Court disagrees with that characterization, at least in this case. Dismissing Samsung's claims on the '902 and '675 patents - unquestionably the harshest sanction - would slam the door in Samsung's face, precluding future relief of those patents are

being infringed. However, because Dr. Choe's testimony is fundamental to Samsung's infringement case, excluding his testimony would have the same impact as outright dismissal.¹⁷ By contrast, declaring a mistrial leaves the door to relief open. Samsung may return to the courtroom in a few weeks, when NVIDIA has been afforded sufficient time to analyze, depose, and supplement. Samsung's opportunity to take its case to trial will be briefly delayed, but not permanently lost. As such, a mistrial is less severe than dismissal or exclusion under these circumstances.

No sanction less severe than mistrial would give NVIDIA what it needs to level the playing field: time. Thus, the less drastic sanctions of ordering Samsung to provide further discovery, cost shifting (standing alone), and fines are inadequate to level the discovery playing field and restore NVIDIA to the position it would have been in absent the failure to disclose. Additionally, having concluded that a delay of several weeks is necessary for NVIDIA to analyze, depose, and rebut, the lesser sanction of a mere continuance is also insufficient. It is inappropriate, having told a jury to expect a three-week commitment, to subsequently tell that jury that the

¹⁷ Thus, NVIDIA's preferred sanction - exclusion of Dr. Choe's testimony - is inappropriate, because a less severe sanction (a mistrial plus limited cost shifting) will satisfy Anderson and Silvestri.

case is going into an extended recess and that the jurors will need to return in several weeks. E.E.O.C. v. Spitzer Management, Inc., 2013 WL 2250757 (N.D. Ohio May 22, 2013) (noting that such procedural irregularity would suggest attorney incompetence to a jury); Estate of Wallace, 229 F.R.D. at 163 (noting the impossibility of concluding discovery within the timeframe initially given to the jury as a reason to declare a mistrial). Moreover, even if the Court declared an extended recess and called this jury back in several weeks, it is unlikely that the jurors would remember the evidence on the '902 and '675 patents that were presented during the first days of trial. Milburn v. Stone, 1993 WL 173403, at *1-2 (D.D.C. May 14, 1993) (noting that dividing a case over several weeks creates an "incoherent" presentation).¹⁸

In this situation, the Court also finds that an adverse inference instruction would actually be more severe than a mistrial, and would also be inappropriate to the nature of the violation. An adverse inference instruction, typically given in spoliation cases, instructs that the jury may infer that absent evidence is favorable to a party. E.g., Vodosek v. Bayliner Marine Corp., 71 F.3d 148, 156 (4th Cir. 1995). In this case,

¹⁸ Incoherence is a particular concern in already-confusing patent cases.

the evidence is not actually missing. When the newly disclosed evidence is presented, the jury may find that it is favorable to NVIDIA, neutral, or unfavorable to NVIDIA. Given the key role that Dr. Choe's testimony plays in this case, instructing the jury that the missing information would be favorable to NVIDIA places Samsung in a worse position than giving NVIDIA time to process the information, and is, as such, actually a harsher sanction than a mistrial under these circumstances.¹⁹ Moreover, an adverse inference instruction would levy more blame on Samsung than the facts warrant: although the principal fault for the nondisclosure rests with Samsung, NVIDIA was on notice of the nondisclosure but took no action to remedy the nondisclosure prior to trial. To tell the jury that Samsung failed to disclose evidence would, on this record, prejudice Samsung more severely than the circumstances warrant under Anderson and Silvestri.

A mistrial is necessary to place NVIDIA in the position it would have enjoyed absent the nondisclosure. Accordingly, a mistrial is an essential component of crafting the least-drastic sanction available.

¹⁹ Additionally, given the complex nature of the case and the parties' dispute over the utility of the newly disclosed data (Def.'s Choe Mem. 1, 14, 25; Pl.s Choe Mem. 15-17), it is unlikely that the Court could craft an instruction that describes the nature and significance of the newly disclosed data to the satisfaction of both parties.

(c) Limited Cost Shifting Is An Essential, But Not More Severe Than Necessary, Component Of An Effective Sanction

Declaring a mistrial will necessarily result in added expense to NVIDIA. An allocation of all or part of that expense is also an appropriate and permissible component of a sanction. In this case, some allocation of expense is necessary to deter future nondisclosure by ensuring that the Court's sanction places the nondisclosing party in a worse position than it would have been if it had fulfilled its obligations.

NVIDIA will necessarily incur additional expenses related to (1) supplemental expert discovery and (2) partially relitigating the '902 and '675 patents. Because of Samsung's role in creating the need for a mistrial, it is appropriate to shift some of this expense to Samsung. However, NVIDIA is certainly not blameless in the circumstances that necessitated a mistrial. Indeed, NVIDIA could have headed off the need for a mistrial months ago if it had acted on the notice that it was given in August, 2015. Considering the relative roles that both parties have played, the purpose of deterrence (Anderson) and the goal of achieving a level playing field (Silvestri) will best be served by allocating part of the added expense of

supplemental expert discovery to Samsung. Specifically, Samsung will be assessed the reasonable costs incurred by NVIDIA:

- (1) For the work of Dr. Lee in examining the previously nondisclosed images from TechInsights, in studying and advising NVIDIA's counsel with respect to the supplemental report to be prepared by Dr. Fair and any rebuttal report submitted by Dr. Choe, in preparing for and being deposed respecting his supplemental report, in helping NVIDIA's counsel prepare to take the deposition of Dr. Choe and Dr. Fair respecting these supplemental reports (and, rebuttal reports as to Dr. Choe, if any); and
- (2) For the services of one lawyer in working with Dr. Lee on the work outlined as to Dr. Lee in paragraph (1) above; and in preparing for the taking of the depositions of Dr. Choe and Dr. Fair as to their supplemental reports (and any rebuttal report of Dr. Choe) and the defending of the deposition of Dr. Lee as to his supplemental report; and
- (3) The reasonable cost, if any, of travel and lodging for Dr. Lee for the taking of his deposition; and
- (4) The reasonable cost of travel and lodging for one lawyer to take the deposition of Dr. Choe and Dr. Fair on their supplemental reports (and any rebuttal report

of Dr. Choe) and to attend the deposition of Dr. Lee (if that deposition is taken where Dr. Lee lives).

This limited cost-shifting provision takes into account all the goals enumerated in Anderson and Silvestri. First, limiting the cost-shifting to the reasonable expenses associated with supplemental expert discovery, rather than to fees and costs related to general preparation for either the first or the second trial, is a relatively limited sanction that takes into account Samsung's good faith. Second, granting cost-shifting at all takes into account the prejudice that NVIDIA incurred by proceeding through discovery with a significant handicap. Third, granting cost-shifting at all deters future similar failures by establishing a sanction which ensures that the costs of nondisclosure are higher than the costs of proper disclosure. Fourth, no lesser sanction will do, because deterrence requires that the Court leave Samsung worse off than it would have been if it had disclosed properly. Finally, imposing partial cost-shifting restores NVIDIA to where it would have been if it had alerted Samsung or the Court to Dr. Choe's nondisclosure at the time NVIDIA was on notice of the nondisclosure. Cost-shifting in this case is intended to compensate NVIDIA as to the nondisclosure, without giving NVIDIA a windfall for its inaction.

In conclusion, reasonable cost-shifting of some kind in addition to declaring a mistrial is necessary to effectuate Anderson's deterrent goal. Limiting cost-shifting only to expenses incurred during supplemental expert discovery: (1) is the least severe sanction that effectuates Anderson's deterrent goals; and (2) discourages opposing parties from inaction after receiving notice of a failure to disclose, best effectuating the "just, speedy, and inexpensive" purposes of the Federal Rules of Civil Procedure.

CONCLUSION

For the reasons stated above, NVIDIA'S MOTION TO STRIKE THE TESTIMONY AND REVERSE ENGINEERING REPORTS OF DR. JEONGDONG CHOE PURSUANT TO RULE 37(c) (Docket No. 744) was granted in part and denied in part. The Court has ordered a mistrial on the '902 and '675 patents to provide NVIDIA an opportunity to engage in curative expert discovery. The Court declined to strike the testimony or expert reports of Dr. Choe. NVIDIA must carefully account for the fees and costs that it incurs (and has incurred) in effecting the cure for the Rule 26 violation. It may submit

a claim for those fees after the trial is concluded.²⁰

It is so ORDERED.

/s/ REP
Robert E. Payne
Senior United States District Judge

Richmond, Virginia
Date: February 29, 2016

²⁰ NVIDIA is cautioned that reasonableness is the standard by which its claim will be measured. Here, reasonableness encompasses the requirement of frugality because NVIDIA is far from blameless in the creation of the need for a mistrial.